Masterthesis Gentrification revised

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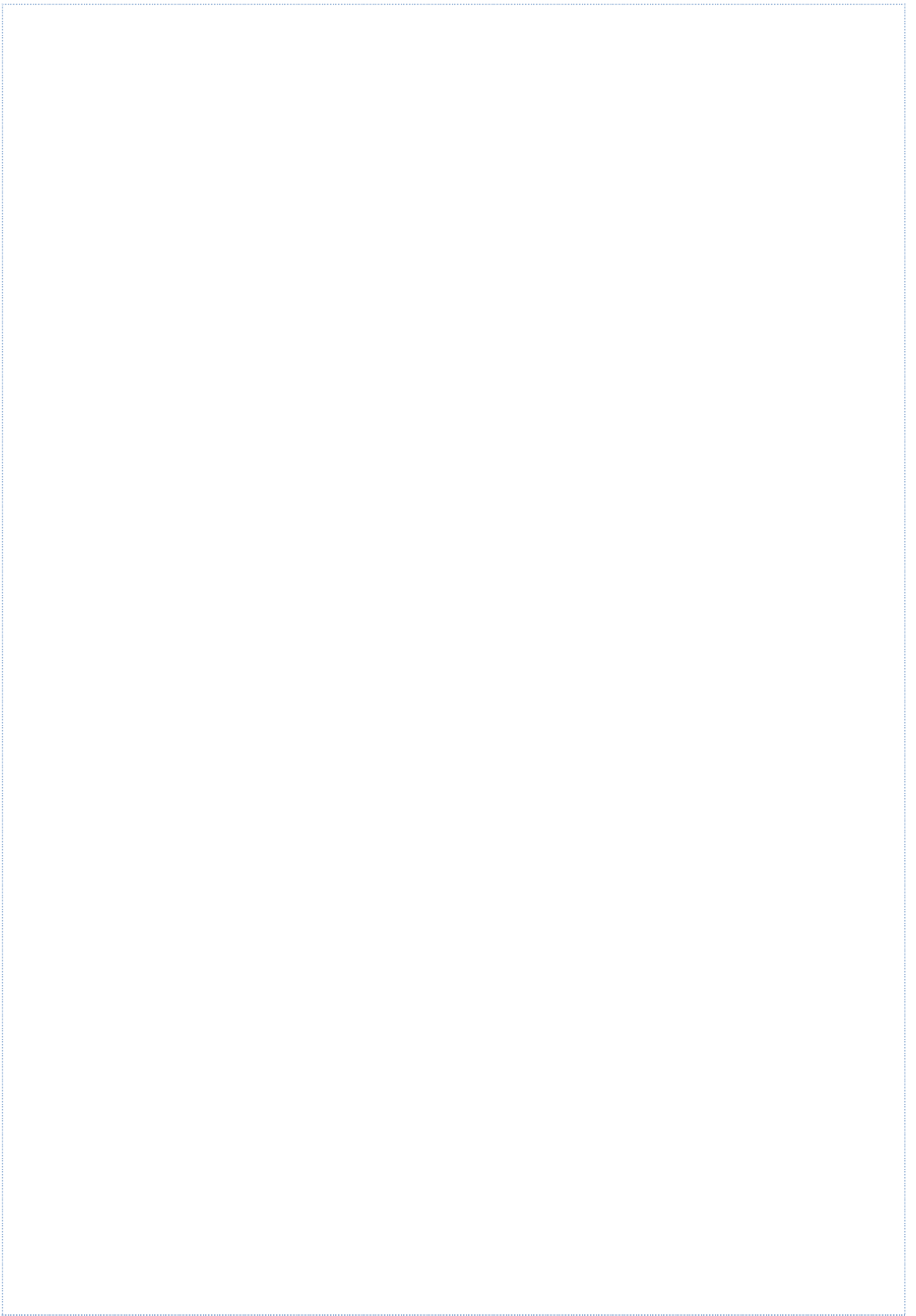
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[1] The picture was taken by the author herself

Table of Content

Preface

This thesis has been no easy task. In fact, it has been a long struggle. However, to sum it up I have learned a lot, not only in terms of knowledge but also about myself as a person. During this difficult process I encountered more than one moment, when I felt like giving up. Nonetheless, I eventually kept going. However, the support and help of others kept me going. Therefore, I want to mention some of these people and express my greatest gratitude.

First of all, I want to thank Erik Snel, my thesis supervisor at the Erasmus University. I am sure there were moment he shook his head in disbelieve. However, it was him who pushed me to keep going. He offered much of his time in advising me in my work.

I also want to thank some of my colleagues of ABF Research. They were always open for discussion and gave many useful advices. Much appreciation goes, first of all, to my college and supervisor at ABF Roland Goetgeluk. His knowledge and criticism was often needed. I also want to thank some other colleagues, for their advice and: Bas Rekveldt, Wim Philipsen, Berry Blijie and Maarten Vijncke.

Many thanks also go to my partner Laurens Driesser. His listening ear and emotional support often gave me the comfort and energy I needed. Last, much appreciation goes to my dearest friends who listened, listened and listened.

Thank you all so much!

Abstract

"In the Netherlands, for instance, a preference for living in inner-city locations has become evident, even among mature, affluent households. But in each Dutch city, the demand is structured differently" (Van Weesep, 1994:77). If such a statement were true, than the classical perception of gentrifiers of young, small, highly educated households, usually childless, and with middle-class income would be outdated. This research looks closer into this issue. Using the secondary dataset WoON of 2009 two explorative techniques, CHAID and logistic regression, are applied. The aim is to give answer to the question of whom the gentrifier of Dutch cities of today is and whether the cultural capital (education) or life-cycle aspects (age, household composition) do influence the choice of people to move to gentrified neighbourhoods.

The results are two-folded. On the one hand, the classical group of gentrifier is found. On the other hand, also other groups with different characteristics are encountered. The analyses showed that households with children are also playing a role, as do young and older single-person households. The results are not generally applicable, due to the techniques used. However, they give reason for further research on the subject. Term such as 'yuppification', young urban professional parents (Criekingen and Decroly, 2003:2452, Karsten 2003), appear to be of greater relevance than so far assumed. The definition of gentrifiers changes. In other words, it stretches along the edges of the classical definition.

1. Introduction

Since the first signs of the economic crisis in 2008 the Dutch housing market has suffered tremendously and is not yet showing any signs of recovery (CBS, 2012). The average house value (short WOZ) was 232.000 euro on the first of January 2012, which means a decrease of 2% within one year. However, some urban neighbourhoods in fact are still popular and attract new middle-class residents (Van Weesep & Musterd, 1991). Previously having known a period of decline and deterioration, such neighbourhoods are growing and undergoing a perdiod of renewal. Housing is still scarce and prices are rising. This positive reversal of some inner-city neighbourhoods is generally known as the process of gentrification. Examples in the Netherlands are neighbourhoods such as 'De Jordaan' in Amsterdam or 'Lombok' in Utrecht. Such positive development of growth is of particular interest to city developers and policymakers especially in times of decline and recession. Knowing who is attracted to certain neighbourhoods will help to adjust the re-development strategies more successfully.

Of particular interest is a recently noted development of family gentrifiers (Karsten, 2003). Karsten did research on a new emerging group of family gentrifiers or as he calls them 'yupps' – young urban professional parents. Due to economical restrictions as well as context-changing gender relations, families with children form a relatively new group of gentrifiers. Similar to these findings a Dutch newspaper article (Van Wezel, 2012) reports that young families and highly educated parents increasingly choose to live in big cities rather than leaving for the suburbs. If that is true then the definition of the classical gentrifier would be outdated as have authors such as Rérat (2012) or Rose (1984) suggested. Particularly in difficult times, knowing who the (potential) gentrifier is might help to successfully develop certain urban neighbourhood strategies. As gentrifiers are commonly defined as being young, highly educated and childless households (Lees, Slater & Wyly, 2010) this article rises the question, whether the classical definition of the gentrifier is still applicable.

1.1. The gentrifier of today

Gentrification, and thus the definition of the gentrifiers, form the central subject of this thesis. Both terms are known for their many debates in public, scholarly and political circles. Gentrification classically refers to changes that result when wealthier people ("gentry") re-enter and rediscover the city by acquiring or renting property in low income and working class neighbourhoods (Lees, Slater & Wyly, 2010). In the *Gentrification Reader* by Lees, Slater and Wyly (2010:XV) gentrification is in short introduced as:

"Gentrification – the transformation of a working class or vacant area of the central city into middle-class residential or commercial use."

The definition of gentrification, however, has changed and has been revised many times over the years (Lees, Slater & Wyly, 2010). First it was described as a relatively insubstantial urban process of neighbourhood regeneration through invasion and succession of affluent incomers who displace lower-income groups (Lees, Slater & Wyly, 2010). Over the years, gentrification, however, has more and more been seen as a process that constantly changes. The reinvestment of capital in the urban core became essential to the definition of gentrification. In more recent attempts to define gentrification it is seen as a process resulting from the shift from an industrial to post-industrial economy, accompanied by the settlement of a new middle class in renovated or redeveloped properties in older, inner-city districts formerly occupied by low-income residents (Lees, Slater & Wyly, 2010). Gentrification is a process of constant change and reliant on social and economic changes.

An understanding of gentrification incorporates also an understanding of the people who bring the process of gentrification along: the gentrifiers. Their motivation and housing preferences is what drives the process as a whole. The conceptual terrain of gentrification and thus who the gentrifier is, has been constantly debated. However a general definition has emerged (Smith & Holt, 2007). The classical gentrifier is described as usually a childless, middle-class household, often unmarried, under 35 years of age, highly educated and working in the advanced services (professional, administrative, technical, and managerial occupations) (Rérat, 2012). Nonetheless, as with the term of gentrification, it is difficult to simply describe the gentrifier in one sentence (Warde, 1991). It is also a term dependent on external societal developments and therefore constantly in need for revision.

1.2. Relevance and research problem

This study aims to investigate the characteristics of gentrifiers in the Dutch cities today. To look closer into the potential shift in terms households moving to gentrified neighbourhoods rather than moving to the suburbs. The aim is to look more closely into the diversity of gentrifiers. In support of Rose's call (1984), the goal is to rethink the conceptualization of gentrifiers and see whether the representation of gentrifiers is in fact outdated. Especially in times of recession knowing who yields beyond contradicting positive developments of certain neighbourhoods is of social and strategic interest for research but also policymakers.

The main issue is whether the classical definition of gentrifiers, as mentioned in the literature, is still applicable. Do researchers as well as policymakers focus on the accurate group of people? Of particular interest is the question, whether life-cycle changes, such as having children, in fact change housing preferences of gentrifiers, as literature would suggests. Thus can gentrifiers basically be described as single and young households? Or is it true that education and thus lifestyle aspects have a growing importance for the housing choice behaviour of gentrifiers. Florida argues higher education has triggered a shift towards post-industrial societies and the emergence of knowledge-based economies (Florida, 2005 in Smith & Holt, 2007). In line with this argumentation Ley (in Smith & Holt, 2007) makes a bolt claim that higher education forms the foundation of the housing preferences of gentrification. Is thus the definition of the process of gentrification and the gentrifier due to a revision? Conclusively this study focuses on the group of gentrifiers in Dutch cities and their socio-demographic characteristics.

The research problem is as follows:

Who are the gentrifiers in Dutch cities of today and what socio-demographic characteristics influence their choice for living in gentrified neighbourhoods?

In order to give answer to the research problem the following sub-question(s) will have to be answered:

- How can gentrified neighbourhoods best be described?
- How can the classical gentrifier best de described in terms of demographic characteristics?
- What are the actual socio-demographic characteristics of households having moved to gentrified neighbourhoods?
- Compare the found group(s) of gentrifers to the classical definition gentrifier?
- What is the influence of the demographic characteristics on moving to gentrified neighbourhoods?
- What are the implications of the found results for future research as well as policymakers?

Two types of quantitative analysis techniques are applied in order to give answer to the research problem: CHAID (CHi-squared Automatic Interaction Detection) and logistic regression analysis. The dataset WoON of 2009 is used as secondary data. The WoON is a modular designed research carried out every three years by order of the Dutch Ministry of Housing, Spatial Planning and the Environment (short VROM) and the Central Bureau of Statistics (short CBS). The WoON holds statistical information on the current, previous and desired housing situation of households.

In the following a detailed discussion of relevant literature on gentrification and the definition of gentrifiers is given. Further, the methodology is explained. The operationalisation of the indictors, identified through the literature review, with the available secondary dataset, is presented. Last, the results of the analyses are presented and put in perspective of the theoretical background. The goal is to give answer to the research questions and discuss the found results in light of the research problem.

2. Theoretical background

2.1. Gentrification

Gentrification is a complex process. It can be understood in many ways (Lees, Slater & Wyly 2010). It is a concept at risk of losing theoretical or analytical clarity. Therefore, the stage model approach of gentrification, offers the best approach to formulate a definition. The stage model approach has been criticised and revised many times (Lees, Slater & Wyly, 2010). However, as Kernstein (1990) argues, the stage model approach provides a basic framework to get a grip on the concept of gentrification. Further, as argued by Lees, Slater and Wyly (2010:36) "gentrification is a process and not a final state. It is always incomplete, never finished".

Also the ongoing debate on the explanation of gentrification between the demand and supply-approach on gentrification is discussed (Ley, 1996, Hamnett, 1991). Both approaches try to explain the reason why gentrification happens in one neighbourhood but not in the other, though both are rather similar. Eventually, both approaches are combined. Again, the process of gentrification should not be seen as a static event but as a process of constant change (Hamnett, 1991). Considering only one approach would neglect the arguments of the other. Gentrification is a process, which depends on both the supply of the desired housing and living environment as well as the demand, which is in need for that specific supply.

Last, a more detailed excursion on the housing preferences of gentrifiers is made. In order to be able to understand gentrification and eventually be able to define the neighbourhoods where gentrification has taken place, the demand side has to be well understood. Thus what are the gentrifiers looking for in a neighbourhood and housing? What attracts them to a place? Eventually choices can be made on the definition of gentrified neighbourhoods based on the understanding of the process of gentrification. What is it and where does it take place.

2.1.1. Stage model approach

Most literature on gentrification describes it as a process of multiple stages. Early research saw gentrification of a temporary character (Berry, 1985). Gentrification is a process that is not static and it can evolve and change over time (Bletterman, 2010, Hoefnagel, 2004; Hackworth & Smith, 2001; Bourne, 1993; Berry, 1985). Different actors such as homebuyers, property-developers or governmental institutions can be involved during the diverse stages and either initiate or slow the process down. Defining gentrification in stages incorporates the geographical, historical, demographical and political context, which is essential to urban change models (Lees, Slater & Wyly, 2010). Hackworth and Smith (2001) identify three distinct stages of gentrification since 1970's.

The first stage compromises the sporadic invasion of a neighbourhood by the middle-class. The existing housing market consists mainly of rental properties or properties with a relative low property value compared to the average value of the area. The neighbourhood is mostly inhabited by the working class (Hackworth & Smith, 2001). In this initial phase the newcomers are often referred to as yuppies or artists "who value the inner-city locations and contribute, mainly through their sweat equity, to the upgrading of older buildings" (Ley in Meligrana & Skaburskis, 2005:1572). This small group of risk-oblivious newcomers see the potential of the neighbourhood. They look for an affordable inner-city area, which offers the cultural and aesthetic characteristics of other popular but more expensive neighbourhoods (Meligrana & Skaburskis, 2005). This group often moves to vacant housing or housing that is part of the normal market turnover. This implicates that in the first stage there is little to no relative change in the neighbourhood composition. Thus gentrification has no measurable statistical impact on the neighbourhood. Up until now, the neighbourhood received little attention in terms of maintenance from owners or lenders, resulting in a declining quality housing stock as well as the neighbourhood in general. The rental and housing prices are relatively low and decreasing. The first stage is thus characterised by disinvestment.

In the second stage, the neighbourhood receives more attention by a larger group of middle-class people (Hackworth & Smith, 2001). The neighbourhood is recognised as up and coming. The neighbourhoods discovered by the risk-taking gentrifiers are being noticed. The revaluation is accompanied by an economic growth in and around the area as well as a change of the demographic structure of the neighbourhood. The group of gentrifiers become more affluent and older. These changes become statistically noticeable. Thus, rental prices and property values increase and vacant housing as well as the rental market decrease (Hackworth & Smith, 2001). Often, the neighbourhoods are chosen because of the older housing stock, yet close to the urban core and having all urban facilities catering to the urban lifestyle of the young professional.

The third stage is characterised by a further growth of interest in the neighbourhood by media, the government and investors (Hackworth & Smith, 2001). Small-scale urban renewal, driven by public-private partnerships, emerges and physical improvements become visible. The rise of rental prices and property value continue to increase. Developers begin large-scale renovations and conversions of rental or vacant units. A large number of properties is renovated. The middle-class continues to invade the neighbourhood. However, they differ from the earlier pioneers in terms of income and age. They are more affluent and older (Hackworth & Smith, 2001).

Based on the stage model approach, it becomes apparent that there are certain characteristics of the neighbourhood such as the housing stock, the location, housing value changes or public interest and increase in investment that indicate that a neighbourhood is gentrifying. In order to identify the gentrified neighbourhoods substantial changes in housing or rental prices should be considered. However, in contrast to the US, the rental housing market is mainly structured and influenced by the public policy in the Netherlands (Smets & van Weesep, 1995; Uitermark, Duyvendak, & Kleinhans, 2007). Therefore considering the rental market can proof to be difficult. Also the inner city location and older housing stock are indicators of gentrification as are the (growth of) services in and around the area.

2.1.2. Supply and Demand approaches

Gentrification studies have long been divided between two approaches: the demand-side-explanation and the supply-side-explanation. "Liberal humanists who stress the key role of choice, culture, consumption and consumer demand, and the structural Marxists who stress the role of capital, class, production and supply" (Hamnett, 1991:233). While scholars from the first group interpret gentrification mainly as the outcome of lifestyle choices made by the new middle class, the second group argues that the cause of gentrification lies with the mobility of capital and thus phases of investment and disinvestment in urban areas.

The demand-side followers argues that gentrification is the result of personal preferences of people (Ley, 1996). Ley discusses the global and social-economic changes during the 1960's and their influence on the gentrification process. The tertiary and quarterly labour force lost ground and the white-collar jobs grew. The changes in the electronic and transport sector have resulted in changes in the labour structure (Ley, 1996). The service and finance industries grew remarkably. This goes hand in hand with the emergence of a new middle class, often called, creative class, who carry a specific lifestyle and certain housing preferences (Florida, 2002; Ley, 1996, Jacobs, 1969).

In contrast to the demand-side approach authors, such as Neil Smith (1979, 1987), are focussing on the dominant role of suppliers of fixed property in order to explain why and where gentrification takes place. Smith (in Hamnett, 2003) defines gentrification as a "back to the city movement by capital, not people". He speaks of a so-called 'rent gap'. This gap refers to the profit to be made of the difference between the potential value of land an its existing use value (Smith, 1979, 1987). Smith describes the rent-gap theory, whereby he argues that in the period after the industrial revolution and during the suburbanisation process, the housing stock of inner city neighbourhoods was neglected. Therefore the gap between the actual market price and the potential property value grows. Selling the property or leasing it can thus lead to a profit, which again becomes of interest for investors. Investors see the possibilities and take the risk of buying and renovating the housing stock of such a neighbourhood.

More recent research has put emphasis on the role of governmental institution. More and more public institutions are concerned with the city development (Uitermark, Duyvendak & Kleinhans, 2007) and thus are occupied with the process of gentrification. Gentrified neighbourhoods emerge and become all the sudden trendy. As Jane Jacobs (1969) stated, especially regions offering a diversity of externalities will appeal to these new consumers on

the housing market. Such a region will not only attract residents but eventually more and more innovation and economic growth. These development and potential economical benefits have led to growing focus on the use of culture, and thus gentrification, as instrument to attract the new-middle class to neighbourhoods of decay (Landry, 2000). The emergence of gentrification as a 'global urban strategy' (Smith, 2002:427-451) is clearly visible. However, as Uitermark, Duyvendak & Kleinhans (2007) argue the driving force of using gentrification as a city-development strategy is neither driven by the pursuit of profit nor by the response to housing demands. Rather it is an attempt to create social order in disadvantaged neighbourhoods.

All three approaches, supply, demand and state-led gentrification, are equally important. Gentrification cannot be explained solely by economics or culture alone. In agreement with Hamnett (2003) and Clark (1992), neither production nor consumption is the only explanation for gentrification. The two divergent perspectives should be reconciled. Sharon Zukin (1987) speaks of the cultural capital, whereby the pioneers among the gentrifiers, the artists, provide the cultural basis for the commercial redevelopment. The demand sets the stage for gentrification. Hamnett (2003) has provided a definition that aims to combine the approaches. He argues that the process is a result of the changing demand, which is entangled with the structural changes of the supply. Gentrification involves the invasion of a new middle-class with high income into previous working-class neighbourhoods (Hamnett in Skaburskis & Meligrana, 2005). This inflow results in the physical renovation of the deterioriating housing stock. As a result the housing market in and around the area is positively affected. Housing are renovated and in general the total housing stock shows a considerable price increase (Hamnett in Meligrana & Skaburskis, 2005). Gentrification is part of revitalization-processes taking place in a neighbourhood, not only physically but also socially (Clark, 2005). Clark suggests that gentrification "is a process involving a change in the population of land-users, such that the new users are of a higher socio-economic status than the previous users, together with an associated change in the built environment through a reinvestment in fixed capital" (Clark, 2005:258). Hamnett (2003) and Clark (2005) argue that both approaches should be combined. Thus, the demand cannot be seen exclusive of the supply. As Clark (1992) speaks of the failure of seeing the link between demand and supply explanations of gentrification. "Gentrification is the outcome of a struggle in which effective demand is generally considered a legitimate form of wielding power" (Clark, 1992:252). Thus without a latent demand the existence of a potential profit to be made from reinvestment en redevelopment is not feasible.

Also policy-led gentrification is driven by the potential use of gentrification as a strategy for positive transformation of a city-district, may that be a transformation in terms of economical, physical or social improvement. Even though the use of gentrification as policy strategy may not be financially driven (Uitermark, Duyvendak, & Kleinhans, 2007) it still needs a latent demand to be successful. Without the people the investment in an area will be futile.

As follows from the above discussion demand and supply play an important role for the existence of gentrification. It also implies that the interplay of both has influence on the housing preferences of gentrifiers. It all evolves around the basic struggle between possibilities and constraints of people. Thus what do people want and what can they get. Therefore, in the following, we will look closer into the aspect of housing preferences and motivations of gentrifiers. It is necessary to see what they are looking for and why. Nevertheless, the above elaboration made clear that increase of housing value is one major indicator for gentrification. The new middle class eventually recuperates the housing of a previously deteriorating neighbourhood and introduces economical and social growth.

2.1.3. Housing choice preferences of gentrifiers

As Jane Jacobs (1969) mentions, especially regions offering a diversity of services and culture will appeal to the new middle class. As Richard Florida (2002) describes the new middle class as a growing potential group of inner-city residents that look for the urban lifestyle. So what exactly attracts them to certain neighbourhoods?

Hulsbergen (2011) summarizes the motivations of gentrifiers into four categories: physical, economical, social and commercial. Physical motivations are urban centres with a lively and cultural atmosphere. Thus, neighbourhoods with many cultural facilities and services as well as often older and characteristical housing. To live in the inner city is regarded as a 'middle-class desire' (Rérat, 2012:225), in order to avoid the suburbs, that are regarded as too common. Ley (1996) speaks also of aesthetization and commodification of art as well as conspicuous consumption (ethnic restaurants, bars, galleries, boutiques, etc). The new middle class takes on a societal importance (Jager, 1986). This class is characterized as a 'class in between' (Walker in Jager, 1986:154), a class in war with the dominant class. He speaks of their fight for interdependence from the dominant class simultaneously with their need for distinction from the lower class. Their housing preferences often reflect that conflict. A change in social position is characterized through a change in housing preferences (Jager, 1986). Their uncertainty is reflected by their preferences for a distinctive architecture. As

Baudrillard (in Jager, 1986) puts it, the taste of the new middle class is characterised by "the desire to transcend the dimension of economic success, to consecrate a social success or a privileged position in a redundant, culturalized, symbolic sign." (Baudrillard in Jager, 1986:155). Important is the distinction from others through their consumption. However, economical limitations force the new middle class to use abandoned (yet) affordable neighbourhoods (Jager, 1986). Gentrified neighbourhoods are characterised by the growth of galleries, coffee lounges, restaurants and the like (Jager, 1986). Thus not only characteristic housing but also the facilities in and around the urban environment are important. Another physical aspect is the factor of proximity to and from services and facilities such as shopping, work or transportation. Gentrifiers are very mobile (Karsten, 2003, Rérat, 2012). Therefore they need to be able to access certain services and facilities in a short period of time. These practical aspects are important for the new middle class to balance work and social life.

Economical motivations mentioned are investment possibilities (Hulsbergen, 2011). Gentrifiers are returning to the city because of financial reasons, not being able to afford suburban living (Caulfield, 1989). Again the argumentation of demand- as well as supply-side is evident. Thus, the supply only brings along profit if there is a demand willing to consume. However, in line with this argumentation gentrifiers might not have chosen for certain neighbourhoods in the first place. Their preferences may rather be with popular central city districts. However, especially the pioneers of the earlier mentioned first stage of gentrification, students or artist, have not yet the financial power to afford housing in the more popular neighbourhoods. They have to look for alternatives. Often these are deteriorating areas, abandoned and mostly inhabited by the working class (Meligrana & Skaburskis, 2005). However, such neighbourhoods are still in close proximity of the popular neighbourhoods and hold the potential to become what other neighbourhoods already are.

Social motivators are the need to live with and close to 'people like us' versus the need for social mix (Hulsbergen, 2011:30; Rérat, 2012; Lees, 2008). On the one hand, literature described gentrifiers as people looking for diversity and social mixing due to the higher cultural capital. The city offers a place for social meeting, a lively neighbourhood, where you can meet people and still be close to work and leisure. However, research also argues that gentrifiers are looking for a neighbourhood of similar demographic composition. Inhabitants of neighbourhoods, which have gentrified, often carry the same social background (Butler & Robson, 2003; Rofe, 2003). The neighbourhoods are places where they can participate in the cultural environment of the same class. Rofe (2003) suggests that gentrifiers look for a global community of collective values and norms. However, at the same time, they express the need for a community of diverse economical, racial or ethnical status.

Last but not least, Hulsbergen (2011) mentions commercial motivational factors such as the promotion by public institutions of certain neighbourhoods. This refers to the earlier mentioned third stage of gentrification. Here the positive turn from decline to growth of the neighbourhood is already advanced. Not only private but also public actors pay attention to the changes. Large scale investments are made and the neighbourhood in fact is slowly out of reach for gentrifiers of the first stage. In fact the gentrifiers of the first stage of gentrification differ from those financially stronger gentrifiers of the third stage. The information available on a neighbourhood, the reputation, is again influence the choice made (Priemus, 1995, 1969).

Table 1 summarizes the mentioned housing preferences of gentrifiers mentioned in the literature.

Table 1. Attributes for housing choice preferences of gentrifiers (Hulsbergen, 2011)

Preference	*Factor*
Physical	Location of inner-city
	Housing type
	Availability of services
	Accessibility of services
Economical	Employment possibilities
	Financial profit or financial restraint
Social	Culture and lifestyle
Commercial	Neighbourhood reputation

2.1.4. Synopsis

Summarizing, gentrified neighbourhoods can best be identified based on physical attributes, such as housing, location and (cultural) amenities. Futher, changes of property values are indicators for gentrification. However, these have to be seen in relation to the average change of the region. Preferably the commercial as well as social aspects should be considered too. However, the secondary dataset used has its limitations, as will be discussed later on. Therefore a focus will lie with the first two categories of indicators for gentrification.

2.2. The gentrifier

As has been argued before the driving force behind gentrification is not only the supply but also the demand, thus the gentrifier. As Smith and Holt (2007) put it, much research sees the gentrifier as fixed to time and space which would conceal the diversity of the same. In other words the definition of gentrifiers is not a static. Next to the definition of the process of gentrification and being able to define the gentrifying areas, it is necessary to look more closely into the definition of the gentrifier. Who do we expect to live in the gentrified neighbourhoods? In order to be able to decide, whether the definition of the classical gentrifiers still applicable, a clear outline of that definition has to be given. The found results can later on be compared to the common expectations.

2.2.1. The creative class

A unified definition of the new middle class is no easy task. Many of the inner-city newcomers can be gentrifiers, those who are home-renovators and highly visible (Jager, 1984), or white-collar young professionals (Hamnett, 1984) or even the cultural consumers such as artists (Lees, 1994). Each of them is unique to one of the diverse stages of gentrification (as explained earlier on). And each can be defined by slightly different characteristics of age, income, occupation or household compositions. However, in general literature has described the gentrifier as small and usually childless middle-class households, often unmarried, under the age of 35, often employed in professional, administrative, technical and managerial occupations, and highly educated (Rérat, 2012:224). David Ley (1996) describes the new middle class as a result of the change from manufacturing industry to service-based industries. Eventually this led to the increase in white-collar professionals, managers and technical workers. Hackworth (2002:815) speaks of gentrification as "the production of space for progressively more affluent users". The creative class is the driving factor behind the economic development of post-industrial cities (Florida, 2002). The

gentrifier works in a wide range of creative and professional occupations. The gentrifier has a diverse and individualistic lifestyle (Florida, 2002). He or she enjoys active participation in a variety of activities such as social interaction, travelling, sports and arts.

A description of the gentrifiers will have to be put perspective with the earlier described stage model approach. Each stage knows a different type of gentrifier. The pioneer of the first stage is economically and socially marginal. He is a risk-taker, who sets the stage for large scale gentrification (Hackworth & Smith, 2001). He is young, childless and has a low income, though holds a high cultural capital (education and job). The gentrifier of the second stage, however, differs from the pioneer. Since the pioneer has introduced re-investment of capital the growth of bourgeoisie values is visible (Hackworth & Smith, 2001). Houses are renovated and new shops open. Capital flows back into the neighbourhood (Hamnett, 2003). Eventually these changes are noticed by older, more affluent middle-class household and a large scale inflow of more affluent gentrifiers takes place. Eventually the pioneers will disappear. Thus, the aspect of residential mobility is of and will be discussed in the following.

2.2.2. Residential mobility

There is an an extensive literature on residential mobility and its relation to changes in the urban fabric. Bletterman (2010) mentions a few theoretical approaches such as Priemus's (1969) theory on the ideal and the aspiration image, the activity approach of Hägerstrand (1970), the career approach (Pickles & Davies, 1991), the life-cycle approach (Clark & Dieleman, 1996), or the concept of lifestyle (Smid and Priemus, 1994). It would be too much to focus on all of them at this point. Therefore some relevant theories will be highlighted.

Literature on residential mobility has been divided into two main approaches: the determinist and the humanistic approaches (Rérat, 2012). Determinist approaches play down the role of individuals and assume that their movements represent an unavoidable response to the external environment. Humanistic approaches, on the other hand, see the individual as a decision maker. Rossie (in Dieleman, 2001:249) shifted the focus from seeing mobility as a collective pattern to seeing it as an individual household pattern with its own motivations. Brown and Moore (in Dieleman, 2001:249) further divided the mobility process into two stages: first, people become dissatisfied with the present dwelling. Second, they search for a new and better option. In most literature mobility is explained by the dynamics between possibilities and constraints (Bletterman, 2010).

In relation to the gentrifiers Hägerstrand (1970) has a more functional explanation. Place-based activities, such as work, education or leisure are reasons for moving. One could argue that living close to work and cultural amenities is also motivator for moving (Ley, 1996; Florida, 2002). In line with this argumentation, another approach is the life-cycle theory (Clark and Dieleman, 1996). Through time, housing preferences will change due to the changing societal position of the household. According to this approach "the migration is a part of the adjustment process in which individuals and families bring their housing consumption into equilibrium with their changing needs" (Clark and Dieleman, 1996:53). Marriage or the birth of a child, for example, influences the housing preferences. However, Karsten (2003) argues that the gentrifiers' housing preferences are much less influenced by such life-cycle events. Karsten (2003) argues that gentrifiers are much more influenced by their cultural background. The life-cycle approach, thus, can only explain part of the housing preferences. Norms, values and tastes due to different socio-demographic backgrounds (such as education) can play an important role as well (Smid & Priemus, 1994).

The RMNO (2004) has summarised the relations between demographic, cultural and economical developments on the (residential) mobility. They examine how societal and economical developments are associated with the change and the increasing diversity in behaviour in terms of housing, work and leisure. Figure 1 illustrates the review of the RMNO.

Figure 1. RMNO Advice Demography and Lifestyle (2004)

Figure 1. RMNO Advice Demography and Lifestyle (2004)
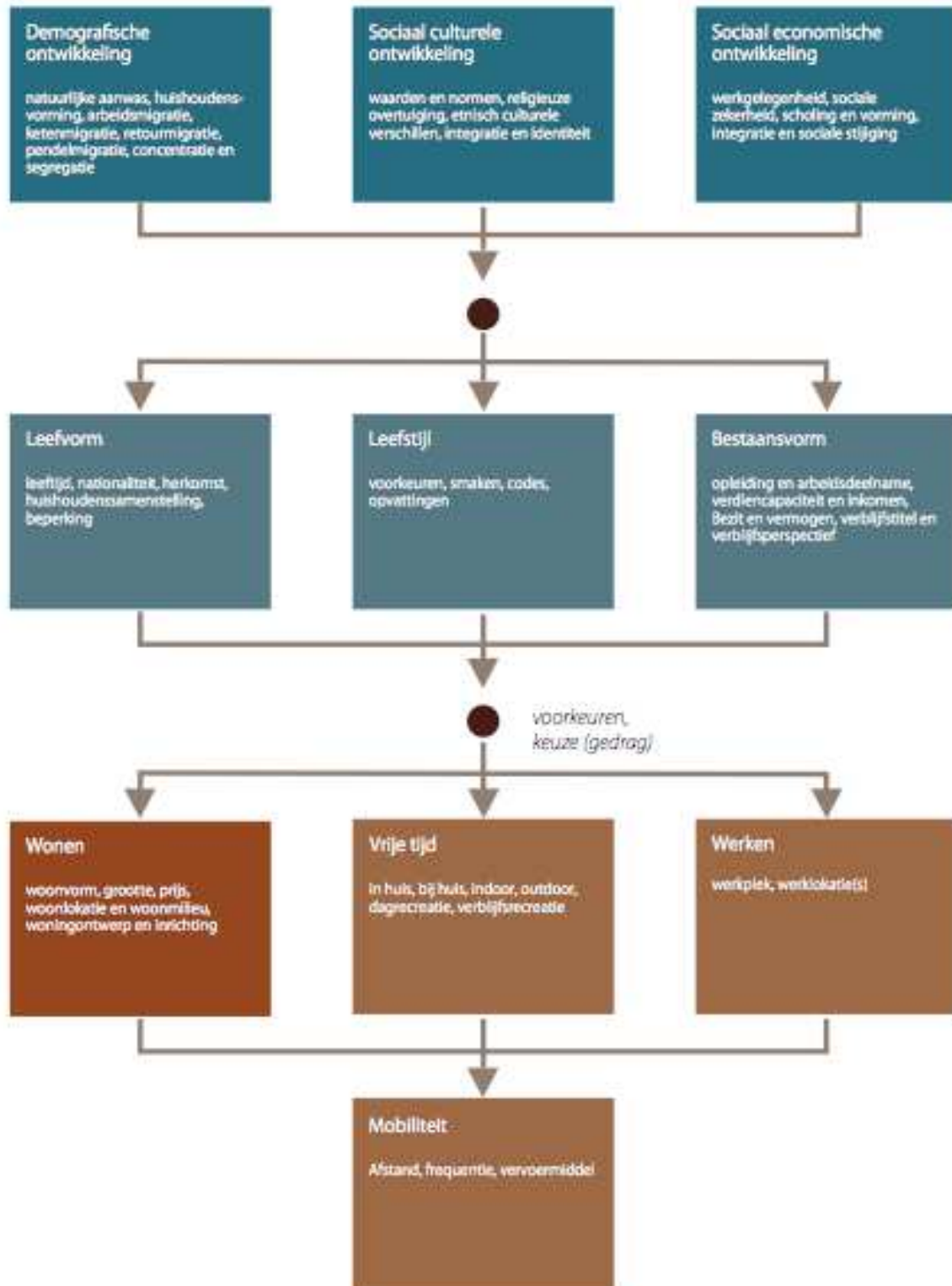
The first row distinguishes between three types of developments: demographic, cultural and economical changes. These include changes in population growth, values, norms or changes within the labour market. The second row shows that societal developments do not directly relate to changes in behaviour of housing, work, leisure, and mobility, but relate first to the personal background of a person. Choices made are influenced by the social environment people live in. The nature of these choices will depend on the state of life, the lifestyle and the form of existence of each individual (RMNO, 2004). In other words the demographic background (age, household structure), preferences and tastes, and education or work will influence the choices made. The combination of these characteristics determine, whether people can get a mortgage or afford the rent of the desired house.

Lifestyle attributes, in particular, are less tangible and much more difficult to measure. They are expressions of tastes, codes and attitudes (RMNO, 2004). This involves both expressions with which people distinguish themselves from others as well as indicate the group of people they (want to) belong to. As has been mentioned before the gentrifier is characterized as a "class in between" (Walker in Jager, 1986:154), a class in war with the dominant class and in need to distinguish itself from the lower class. However, in a methodological sense, the broad definition of lifestyle can create much confusion. Measuring these includes a large number of characteristics of respondents to establish a dimension and eventually a group of people with certain lifestyles. Therefore, the RMNO (2004) advocates a restrictive interpretation of the term lifestyle. This research will focus on the individual socio-demographic and socio-economic characteristics, to distinguish the state of life and form of existence.

2.2.3. Synopsis

In summary, the gentrifier can be a very divers group of people depending on the stage of gentrification. The choice of a dwelling depends on a household's needs and preferences, which in turn are determined by characteristics such as education, income, age and household composition (Rérat, 2012). Changes in these positions over time are called events and such changes can trigger changes within of the residential mobility. The question remains to what extent any of these play a for choosing to move to a gentrified neighbourhood.

2.3. Conceptual model

This research is split into two main parts: First to look into the group of gentrifiers of today, who they are, what characterises them and in how far do they compare to the expected description of the classical gentrifier. Secondly, the question remains of the relation between the choice of living in a gentrified neighbourhood and certain socio-demographic characteristics. Does age influence the probability of living in a gentry-neighbourhood? Or does having a child change the preference for the urban environment. Are the earlier mentioned findings of recent developments of family-gentrifiers also to be found in Dutch cities? Is the choice for living in certain neighbourhoods related to life-cycle aspects (age, household composition) or rather to the cultural capital of people (education, income)? All these questions are leading to the earlier mentioned research problem, being illustrated graphically in figure 2.

Figure 2. Research model

State of life characteristics (age, household)

Form of existence characteristics (income, education)

'Gentry' neighbourhoods
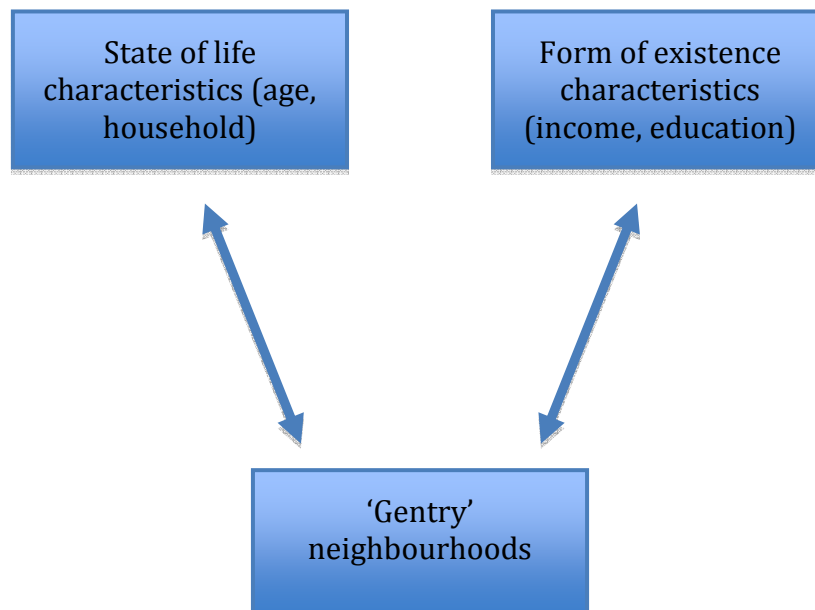
3. Methodology

In the following the research model is translated into measurable variables. The used analytical techniques are described and the available data used is discussed.

In order to see who lives in gentrified neighbourhoods the segmentation technique of CHAID analysis is applied. With this technique the respondents who moved to the gentrified neighbourhoods (since 2000) – the dependent variable – will be segmented into groups based on their socio-demographic and socio-economic characteristics – the explanatory variables. This will help to unravel possible patterns within the demographic characteristics of household, which moved to gentrified neighbourhoods. However, in order to do so, first the dependent variable, the gentrified neighbourhoods, will have to be defined. Secondly, logistic regression analysis is used to look closer into the relationship of the explanatory variables with the dependent variable. Thus what can be said over the probability for certain groups of people to live in gentrified neighbourhoods. Last, the found results are translated into socially relevant recommendations. It is interesting to see how the found segments of household characterisitcs will develop in the coming years. In order to do so a household estimation model – Primos[2] – will be applied.

3.1. Research data and sample

The secondary dataset used is the Housing Research of the Netherlands of 2009 or short WoON[3]. The WoON is a modular designed research carried out every three years by order of the Dutch Ministry of Housing, Spatial Planning and the Environment (short VROM) and the Central Bureau of Statistics (short CBS) (VROM & CBS, 2010). The WoON holds statistical information on the current, previous and desired housing situation of households including housing expenses. The data is collected by personal interviews and via the Internet. The sample was drawn from the Dutch population of eighteen years and older. Over 78.000 people participated in the questionnaire in 2009.

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[2] Developed by ABF Research, Delft, www.abfresearch.nl

[3] The WoON is available to the company ABF Research, the employer of the researcher of this paper and could be used for the purpose of this research.

The WoON in general is used to explore how people live and want to live. The WoON also gives information on household structures, housing costs, desired living circumstances and housing environment. The collected information is used to answer relevant political questions and develop new policies. The basic module of the WoON is the so-called 'housing module'. Further follow-up modules are focusing on issues such as social-physical aspects, energy, future housing desires and mobility.

3.2. Dependent variable – 'gentry' neighbourhoods

Two aspects form the central criteria for selecting the gentrified neighbourhoods. First the type of neighbourhoods was applied as criteria. In order to measure the location and physical aspects the variable 'living-environment' has been used. This variable is constructed by ABF Research[4] and is based not only on variables of the WoON but also on a great range of other external datasets. It classifies the setting of a neighbourhood as well as the type of housing. For example, a neighbourhood type located in the city centre with all amenities close by, or in the countryside with no neighbours. There are two sorts of living environment variables constructed, one differentiates 5 categories and the other speaks of 13 categories. For this analysis the more detailed segmentation of 13 categories is used. The diverse categories can be assigned to one of the 5 main types: city district, urban but not city district, urban-green, village centre and rural. Since gentrification has been defined in or around the city centre the focus lies with the first and second type. The first is divided into two types the urban core of the four main central cities of the Netherland and other central city neighbourhoods. The second type is divided into three categories. Here the first – urban pre-war - is of particular interest. It contains all housing with a building period before 1945, which in turn is said to be of interest to gentrifiers who look for a characteristic and historical living environment. Moreover the older housing stock offers the chance of creating a profit by lower housing prices and room for renovation. This type of neighbourhood includes housing close to the urban core. An overview of the respondents of the WoON divided into the 13 neighbourhood categories is given in table 2. In total 10.863 respondents live in ether one of these types of living environment.

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[4] ABF Research, employer of the author, www.abfresearch.nl

Table 2. Descriptive of WoON sample 2009 variable 'living environment typology'

	Frequency	Percent
city centre plus	1.500	1,9
city centre	1.823	2,3
urban pre-war	7.540	9,7
urban after-war compact	15.988	20,5
urban after-war landbound	8.741	11,2
urban green	5.228	6,7
small city centre	1.401	1,8
small urban	7.759	9,9
small urban green	3.817	4,9
village centre	10.916	14,0
village	6.974	8,9
rural accessible	4.932	6,3
rural	1.452	1,9
Total	**78.071**	**100,0**

Secondly, the changes in real estate values have been used as selection criteria. The data is collected from the Central Bureau of Statistics of the Netherlands – CBS – that publishes data online (www.statline.nl) for public use[5]. Hereby, the increase in the average value per neighbourhood as well as per municipality between 1999 and 2009 was determined. Further these changes were compared per neighbourhood with the average change per municipality. If in fact the average increase in real estate value per neighbourhood is higher than the average within the municipality then the neighbourhood was selected for further analysis.

These neighbourhoods are further filtered by the respondents, who moved into the neighbourhood since 2000. This selection is made in order to increase the chance to look into the group of new residents rather than selecting respondents who already live there for a longer period of time. That way the income of new residents is related to the above average increase of property values in the same period of time.

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[5] Kerncijfers wijken en buurten 2004-2011;
http://statline.cbs.nl/StatWeb/selection/default.aspx?VW=T&DM=SLNL&PA=70904NED&D1=151,153,155-156,158&D2=0,866,5488,14236&D3=4-7&HDR=T&STB=G1,G2

The respondents were assigned to the group of people having moved into gentry-neighbourhoods based on the tree mentioned criteria. A total of 2.333 respondents of all 78.071 respondents were defined as the target group category. This is 3,2% of all respondents excluding the missing cases from the equation..

Table 3. Descriptive of WoON 2009 dependent variable 'gentry'-neighbourhood

	Frequency	Percent
Gentry	2.333	3,0
Non-Gentry	71.481	91,5
Missing	4.257	5,5
Total	78.071	100

Figure 2 shows the municipalities of the Netherlands and their share of gentrified neighbourhoods. The municipalities of Amsterdam, Arnhem, Zwolle and Rotterdam have the highest share. These are followed by municipalities such as Emmen, Harlem, Utrecht, Leiden, Groningen or Delft. All identified neighbourhoods are divided over 328 municipalities of all 441 municipalities in 2009.

Figure 3. Map of neighbourhoods identified as gentry-neighbourhoods in the Netherlands, CBS - Statline
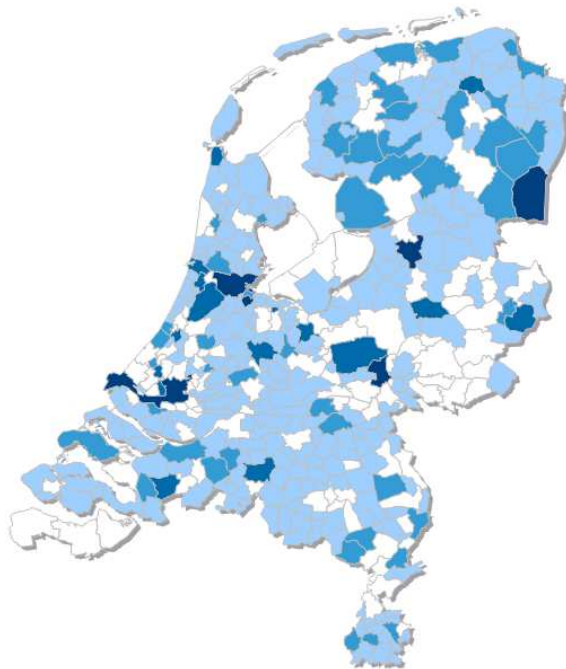
3.3. Explanatory variables

The explanatory variables are the socio-demographic indicators mostly mentioned in the literature as describing the 'new middle class' – the gentrifier. First, educational level was used. Gentrifiers are foremost known to have a higher educational level and eventually work in a creative or professional sector. Unfortunately the WoON does not include a suitable variable on the type of profession, offering a thorough classification of job position. Second, the income level is also used. Literature either refers to the pioneers holding a low income or, on the other hand, speaks of the second wave of gentrifiers being more affluent. Third, age is used since literature often speaks of gentrifiers being in their mid-thirties. Fourthly and last, the household composition was added. As most literature mentions gentrifiers belong to a small, single household typically without children. Table 4 gives an overview of the used variables and the categories per variable.

Table 4. Variables in the dataset used as explanatory variables

Code	Dutch Name	English name	Description
lfthh13	Leeftijd (13 klassen)	Age	Age in 13 categories: 15-24; 25-29; 30-34; 35-39; 40-44; 45-49; 50-54; 55-59; 60-64; 65-69; 70-74; 75-79; 80+
qvromhh5	Netto inkomen (5 quintielen)	Net income	Income in 5 quintiles: 0-20; 20-40; 40-60; 60-80; 80-100
vltoplop	Hoogst voltooide opleiding	Educational level	Highest achieved (Dutch) educational level: Lower education; LBO; MAVO/MULO/VMBO; HAVO/VWO/MBO; HBO/WO; Other
hht	Type huishouden	Household structure	Household structure in 3 categories: Single household; Household with child; Household without child

The following tables give an overview of the frequencies of these explanatory variables of the respondents of the target group category.

Table 5. Frequencies of explanatory variable categories of age

Age	Frequency	Percent
15-24	364	15,6
25-29	427	18,3
30-34	414	17,7
35-39	326	14,0
40-44	257	11,0
45-49	138	5,9
50-54	98	4,2
55-59	86	3,7
60-64	68	2,9
65-69	62	2,7
70-74	36	1,5
75-79	25	1,1
80+	32	1,4
Total	**2333**	**100,0**

Table 6. Frequencies of explanatory variable categories of income

Income	Frequency	Percent
1e	486	20,8
2e	409	17,5
3e	363	15,6
4e	353	15,1
5e	404	17,3
Missing	2015	86,4
Total	**318**	**13,6**

Table 7. Frequencies of explanatory variable categories of education

Education	Frequency	Percent
Lower education	121	5,2
LBO	119	5,1
MAVO,MULO,VMBO	166	7,1
HAVO,VWO,MBO	745	31,9
HBO,WO	1174	50,3
Missing	8	,3
Total	**2333**	**100,0**

Table 8. Frequencies of explanatory variable categories of household composition

Household Composition	Frequency	Percent
Single	1041	44,6
Without child	516	22,1
With child	776	33,3
Total	**2333**	**100,0**

3.4. Methodology

In order to answer the research questions two statistical methods will be applied. Both are of an explorative character. First, a CHAID analysis is carried out, followed by a logistic regression. In the following these are described.

3.4.1. Segmentation - CHAID analysis

In order to answer the question on whom the gentrifier of today is a CHAID analysis will be carried out. This is a decision tree technique (Clark, Deurloo & Dieleman, 1991). CHAID stands for Chi-square (χ2) Automatic Interaction Detection (Kass in Clark, Deurloo & Dieleman, 1991). It is an explorative technique, where the categories of a number of explanatory variables are clustered together based on their influence on the dependent variable. The explanatory variables may hereby interact with each other. CHAID can be used in a similar manner as regression analysis for prediction. It visualizes the multidimensional contingency table into a tree diagram. The clusters or segments of the categories of the explanatory variables are determined based upon the strength of their relationship with the dependent variable. The advantage of the CHAID analysis is that it is highly visual and easy to interpret. However it needs rather large sample sizes to work effectively, since a small sample sizes can not give enough cases to make significant splits.

The goal of this analysis is to determine the relationships between the dependent variable – having moved to a gentry-neighbourhood (since 2000) – and the explanatory variables –age, household-composition, education and income. The CHAID will generate groups of respondents of the categories of the explanatory variables and predict their impact on the dependent variable (Clark, Deurloo & Dieleman, 1991). The predictor categories are clustered in groups for those predictors' categories, which lead to similar significant discrimination in the dependent variable.

In order to use this technique, continuous variables must be excluded or recoded into categorical variables. CHAID models can handle categorical data. As far as predictive accuracy is concerned, it is difficult to derive general recommendations (Clark, Deurloo & Dieleman, 1991). Therefore it is advisable to apply different algorithms. Not least for that reason a logistic regression analysis is also used based on the found clusters of explanatory variables' categories of the CHAID analysis.

3.4.2. Probabilities - Logistic regression

The second analysis technique applied is a logistic regression. This analysis is used for predicting the outcome of the categorical dependent variable based on one or more predictor variables (the categorical segments found based on the CHAID analysis of the explanatory variables age, income, education and household composition). The logistic model calculates whether explanatory variables statistically affect the dependent variable (Mortelmans, 2010). The target group is coded as "0" and "1". The code "1" meaning the respondent moved to a gentry-neighbourhood and the reference group of not people who did not move to a gentry neighbourhood coded as "0". The goal of the logistic regression is to explain the relationship between the explanatory variables categories and the dependent variable. Thus to be able to predict for a new dataset the outcome based on the same explanatory variables. A combination of these results with a population forecast model will help to give more relevant recommendations.

The explanatory variables may be of any type: continuous, binary or categorical. However, categorical variables have to be recoded into dummy variables, meaning separate explanatory variables taking the value 0 or 1. 1 meaning "variable does have the given value" and a 0 meaning, "variable does not have the given value". In this analysis all explanatory variables are entered into the analysis as dummy variables since they are all of categorical type.

Further, a stepwise regression method is applied. Meaning a forward selection of entering the explanatory variables to the model. Starting with no variables and then testing the addition of each variable in each following model. This way it is tested whether adding the variable improves the model in comparison to the previous model. This process is repeated until no improvement of the model can be made.

3.4.3. Differences between CHAID en Logistic regression

Logistic regression differs from the CHAID method in two ways (McCarty & Hastak, 2007). First, it provides a response probability for individual members rather than discrete groups of people. Thus next to CHAID, which is a more explorative technique, logistic regression can help to predict future response of certain groups of people in a new dataset. Second, in contrast to logistic regression analysis, CHAID analysis is distribution free with regard to continuous predictors, since these are not entered into the equation.

Further, The CHAID analysis is more robust than regression (Karg, 2004). The robustness refers to the effect of outliers. This means a large change in the dataset will have more effect on logistic regression analysis. Regression is resulting in an average value, thus outliers will have a great effect on that average. CHAID is, on the contrary, working with median values, and therefore can handle outliers much better. CHAID can give a clear idea on which explanatory variable is of greatest importance for the classification (Karg, 2004). The variable with the greatest importance will split the tree first. Also, CHAID is easy to use and interpret.

However, regression analysis can in addition deliver some useful insights. CHAID, in fact is an instable technique when it comes to small changes in the dataset. Thus small changes in the explanatory variables can easily result in a different tree and thus different conclusions on the relevance of variables. That means regression changes less easily as a result of small changes in the dataset.

3.4.4. Future estimations – Primos

Last but not least, the results of both analyses have to be put in perspective and conclusions have to be drawn. Based on the parameter of the logistic regression analysis in combination with a household forecast model of these explanatory variables a careful estimation of future developments can be made. In order to do so the household forecast model, developed by ABF Research – Primos[6] – will be used.

The Primos-trend forecast differs from scenario studies (Otter, Leeuwen & Jong, 2011). It displays the most likely future developments based on current insights. Primos predicts the population growth due to demographic factors and simulates the processes of household formation. These are based on available historical data per municipality and parameters are estimated per region. The development of the number of households depends on developments in the population structure and the household formation of that population. The results are population (age, gender, ethnicity), mutations (natural increase, internal and external migration), households (age, composition, income), and quantitative housing needs, housing stock and vacancy rates. Primos 2011 is aligned with the national population of the Central Bureau of Statistics (CBS) in December 2010. The household forecast is based on the situation in the household per 1-1-2010. The estimate of housing production for the next few years is adapted to the low variant of the Construction Industry Forecasts 2010-2015 by TNO.

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[6] Developed by ABF Research, Delft, www.abfresearch.nl

4. Empirical results

4.1. CHAID Analysis

The goal of the CHAID analysis is to group the categories of the explanatory variables age, income, education and household composition together by their common relationship with the dependent variable of having moved to a gentrified neighbourhood since 2000. The found segments clarify who chooses to live in these areas. Analysing the output of the CHAID the focus lies with the changes in division of respondents belonging to the target category of the dependent variable. In other words, does the percentage of the people having moved to a gentrified neighbourhoods increase for certain clusters of the categories of the explanatory variable. The aim is to identify the (diverse) groups of gentrifers.

Assumption

Based on the earlier discussed literature the following expected group of classical gentrifiers defined upon explanatory variables age, income, education and household composition was formulated: In general highly educated, single (or childless) households. Depending on the stage of gentrification the age and income can vary. In the first stage one speaks of younger pioneers such as students or artist having relatively low income. The second stage, on the other hand, is described by the inflow of somewhat older (mid-thirties) and more affluent people.

Results

Table 6 shows the output of the CHAID analysis. Figure 4 and 5 show the tree diagram, split into two parts. The CHAID analysis resulted in a maximum tree depth of 3 levels with a minimum of 100 cases in parent nodes and a minimum of 50 cases in child nodes. In total there are 48 nodes generated with 29 being terminal nodes. Of all respondents 3,2% belong to the target groups. That translates to 2.333 respondents of the 73.814 having moved to a gentrified neighbourhood. The CHAID resulted in 29 final nodes.

Table 9. Overview of CHAID analysis

	Description	Gentry (% of total segment)	Gentry (abs.)	Non-Gentry (% of total segment)	Non-Gentry (abs.)	Total (% of total sample)	Total (abs)
Age group 45-49							
1	Without child; very low or mid- to high income level	*1,0*	36	*99,0*	3.490	*4,8*	3.526
2	Without child; 2e quintile income level or unknown	*3,3*	11	*96,7*	318	*0,4*	329
3	With child; high or other education	*5,0*	20	*95,0*	384	*0,5*	404
4	With child; low to middle education	*1,8*	23	*98,2*	1.221	*1,7*	1.244
5	Single; 3rd or 5th quintile income level	*7,1*	21	*92,9*	276	*0,4*	297
6	Single; 1st, 2nd or 4th quintile income level	*2,9*	27	*97,1*	901	*1,3*	928
Age group 25-34							
7	Highly educated; without child	*7,9*	66	*92,1*	766	*1,1*	832
8	Highly educated; with child	*12,9*	231	*87,1*	1.563	*2,4*	1.794
9	Highly educated; single	*20,4*	241	*79,6*	939	*1,6*	1.180
10	Low to middle education; multi-person household	*4,2*	185	*95,8*	4.195	*5,9*	4.380
11	Low to middle education; single	*8,7*	118	*91,3*	1.232	*1,8*	1.350

36

Age group 15-24 & 40-44

12	Without child; 3e – 5th income quintile	2,3	90	97,7	3.784	5,2	3.874
13	Without child; 1e – 2nd income quintile	5,7	45	94,3	747	1,1	792
14	With child; 2nd – 5th income quintile	7,1	99	92,9	1.297	1,9	1.396
15	With child; 1st income quintile	18,1	42	81,9	190	0,3	232
16	With child; income unknown	0,5	32	99,5	6.534	8,9	6.566
17	Single	8,5	139	91,5	1.499	2,2	1.638
18	Single; income unknown	30,5	174	69,5	397	0,8	571

Age group 50-59

19	Multi-person households; High & Low education	1,3	48	98,7	3.519	4,8	3.567
20	Multi-person households; Middle level education	0,5	33	99,5	6.073	8,3	6.106
21	Single; High &Other education	5,3	52	94,7	935	1,3	987
22	Single; Low -Middle education	2,4	51	97,6	2.071	2,9	2.122

Age group 70+

23	Older than 70 years	0,8	93	99,2	11.615	15,9	11.708

Age group 60-69

24	2nd – 5th income quintile	0,8	81	99,2	9.548	13,0	9.629
25	1stor unknown income quintile	2,1	49	97,9	2.302	3,2	2.351

Age group 35-39

26	High or other education; without child	6,6	87	93,4	1.223	1,8	1.310
27	High or other education; single or with child	13,4	121	86,6	785	1,2	906
28	Low – Middle education; Multi-person households	2,6	80	97,4	2.987	4,2	3.067
29	Low – Middle education; Single	5,2	38	94,8	690	1,0	728
Total		3,2	2.333	96,8	71.481	100	73.814

The first explanatory variable, whereupon a significant split is made, is age. The age groups are clustered into seven segments. In the following a focus will lie with three of these age groups, since the percentages of the target group has increased significantly in comparison to the distribution of the whole sample of 3,2%. Overall, the age groups of 45 years or younger show significantly higher percentages of the target group (people who moved to gentrified neighbourhoods) than for the total sample. The age group of 25 to 34 years holds the highest percentage of 8,8%. But also respondents of 35 to 40 years have relatively larger numbers of 5,4% versus 3,2%. This group is followed by the youngest age group of 24 years or younger clustered together with the age group 40 to 44 years. This group has an increase by 1% to 4,1%. In terms of absolute numbers the 25 to 34 years are the largest group. They show the highest numbers for the highly educated single households as well as household with children. They are followed by the households of 25 years or younger or 40 to 44 years. Particularly the single households make up a large part of that group. Last, the 35 to 39 years are the third largest group in absolute numbers. Especially the highly educated single households as well as households with children are part of this segment.

The seven age group clusters are further split into sub-groups. The age group of 25 to 35 years is split on education. The highly educated hold higher shares of the target group with an increase of more than 5% to 14,1%, being already more than four times higher than the share of the total sample of 3,2%. This group compromises highly educated 25 to 35 year old households. A last split is made on household composition and leads to yet another increase to 20,4% for single households. This group does comply the most with the expected group of classical gentrifiers. However, households with children also have a percentage increase to 12,9%. This is lower than for single households, though still significantly higher than for the total sample. A multi-person household holds much lower distribution of 7,9%, however still higher than 3,2% for all respondents. In short, being around 30 years and highly educated increases the percentage of belonging to the target group significantly as does being single or having children.

The age groups of 25 years or younger is clustered together with the age group of 40 to 44 years. This group holds the highest share for single households with 14,2% belonging to the target group. Another split is made upon income. The outcome, though, is unclear. An increase of nearly ten times the original share of 3,2% to 30,5% is realized for households with unknown income. Nonetheless, being single and either under 25 years or between 40 and

44 years does increase the chance of moving to a gentrified neighbourhood. Further, another node of households of this age group are those with children. This sub-segment shows an increase to 18,1% for the lowest income group. Possibly these households are young, financially immature students or single parents. Interesting is that this group is not clustered based on education. This means being young (student) or older and single does increase the chance of moving to a gentrified area on it own.

The 35 to 40 year old households are further split upon education. Similar to the first age group of rather classical gentrifier group, the highly educated choose more often to live in gentrified neighbourhoods than do households with a lower education. The relative size if the target group increases from 5,4% to 9,4%. Another last split is made on household composition. The size of the target group increases to 13,4% both for single household and households with children. This is contrasting to the expected outcome of single and small households being typical gentrifiers. It implies that singles but also families choose to live in gentrified neighbourhoods. This group supports the possibility that there is in fact a growing group of family gentrifers. Yet not the largest group in absolute terms still a significant change in relative numbers.

Concluding, even though in relative as well as absolute numbers the more classical group of gentrifiers of highly educated, single households between 25 and 35 years is largest, there are still interesting sub-groups of younger single households as well as family households. Thus, age, education and household composition are important variables whereupon diverse groups of gentrifiers can be categorised. Being younger than 45 increase the chances in general. For most groups also a higher education is of positive influence, however in combination with a younger or somewhat older age groups, such an influence diminishes. Similar, the somewhat older households show no difference for single households or families, however education does play a role. Thus a first cautious conclusion indicates that the definition of gentrifiers changes or it other word is broader than expected.

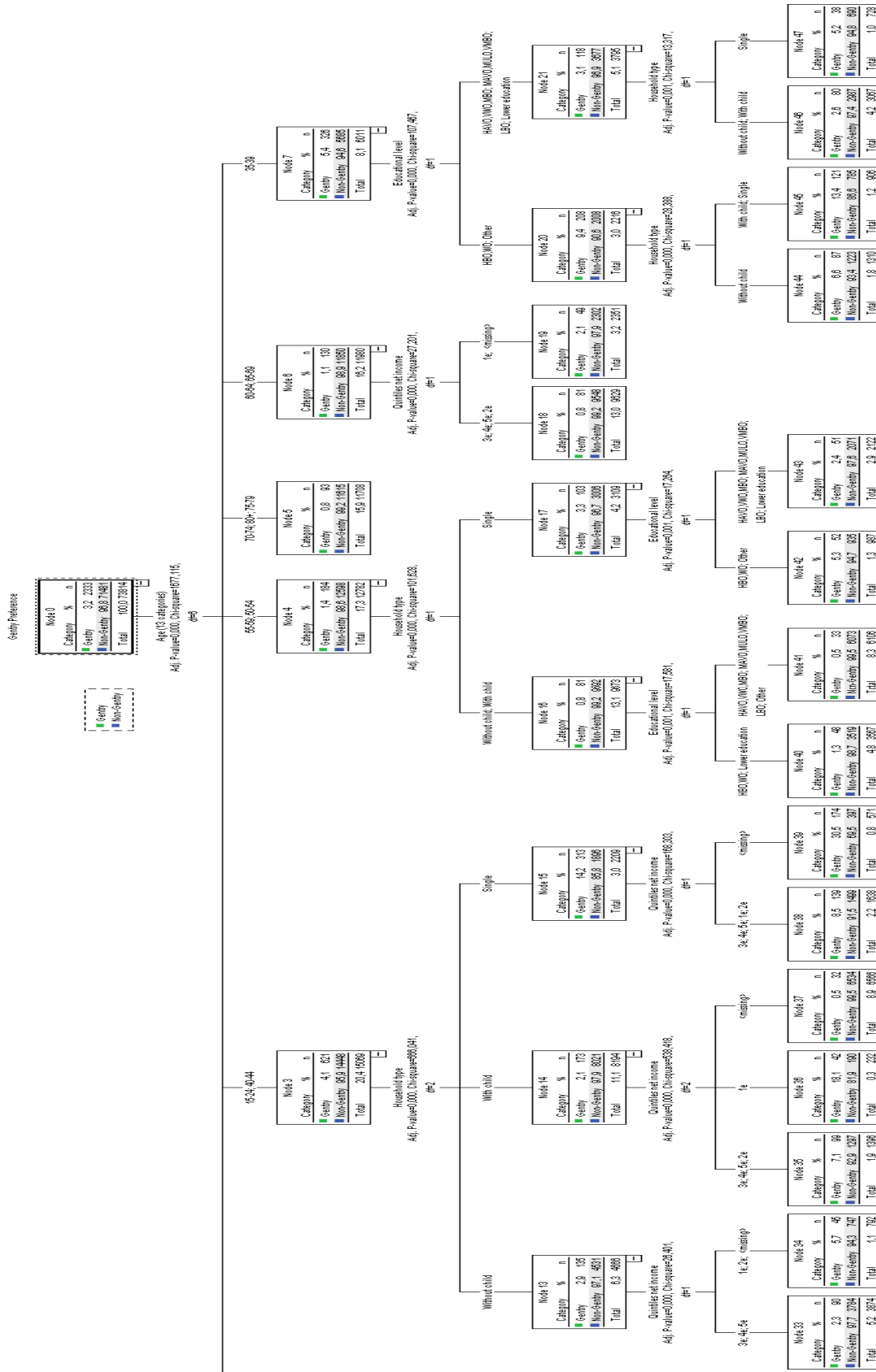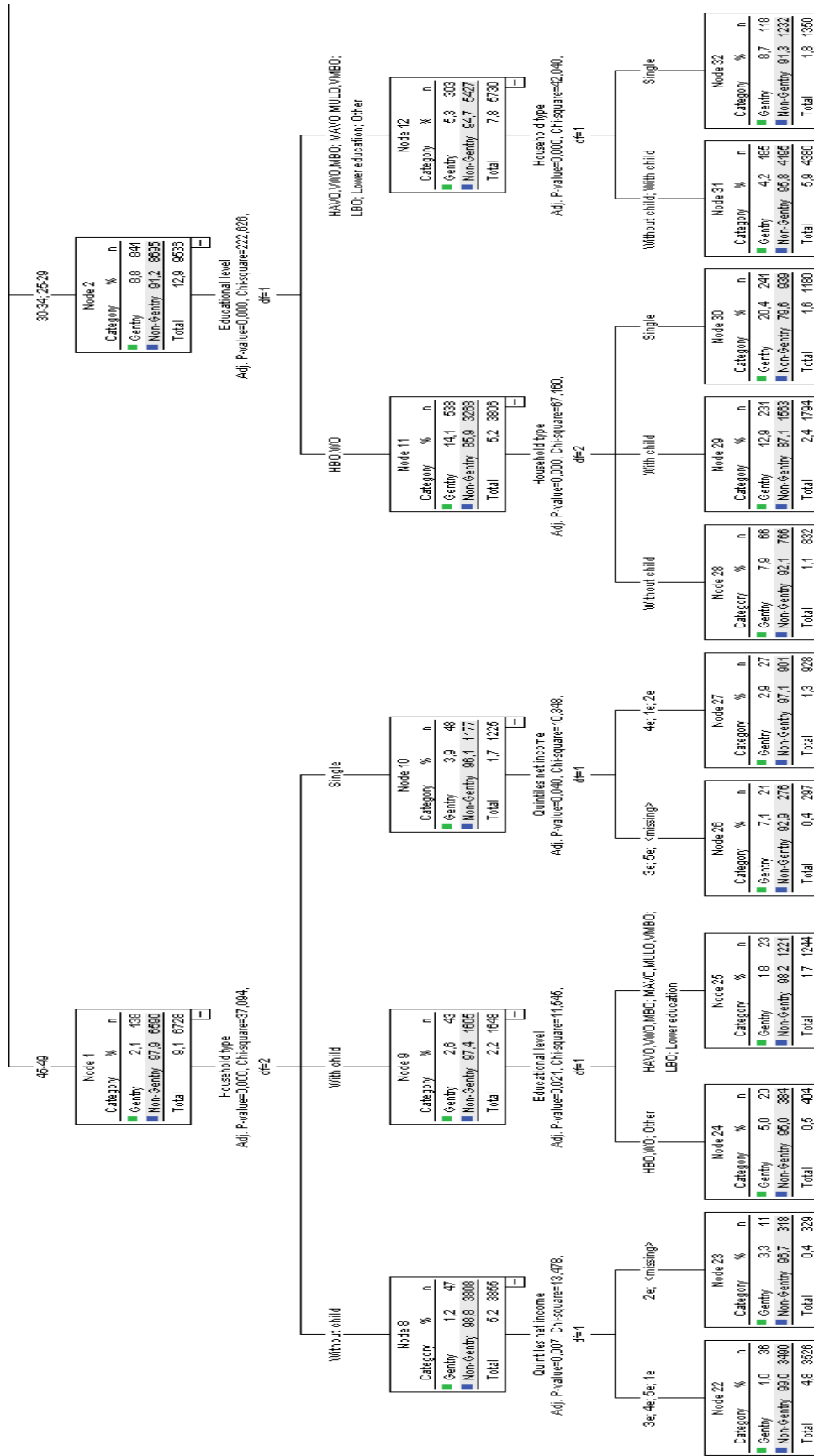**Figure 4. CHAID tree diagram Gentry-neighbourhoods (Part 1)**

Figure 5. CHAID tree diagram Gentry-neighbourhoods (Part 2)

The following groups summarise the earlier described results of the CHAID analysis into three main groups of gentrifiers, distinguishable based upon the explanatory variables categories.

The classical gentrifier

The first group compares with the classical group of gentrifiers. This group is between 25 and 39 years. In absolute as well as relative numbers this group compromises the largest share. These households are highly educated and often single households. Income level cannot clearly differentiate this group.

The urban parents

The second group are households between 25 and 40 years. They are highly educated households with children. This group complies with recent observations of a growing share of young professional parents choosing the city as a place to live.

The single

A third group of interest are single households. Either young or more mature, this group is differentiated upon household composition and income but not education. It compromises mostly single households, however also to some extent households with. Probably this group consist to a large extent of students or single parents with low incomes.

4.2. Logistic regression

In order to look closer into the relations between various explanatory variables and the dependent variable (having moved to gentrified neighbourhoods since 2000) a logistic regression is additionally applied. The logistic regression is used for predicting the outcome of the categorical dependent variable based on multiple predictor variables – income, age, education and household composition. Basically it is a similar method as the CHAID analysis. However, both hold their advantages and disadvantages, which have been discussed earlier. In comparison to the CHAID analysis, which determines how good a group can be split into unique segments based upon explanatory variables, logistic regression provides a probability for respondents to belong to the target group (Mortelmans, 2010; McCarty & Hastak, 2007). A step-forward method has been used due to the more explorative character of this research.

Assumptions

To recapture the assumptions based on literature on the definition of gentrifiers, one would expect that age, education and household compistion hold a relation with choosing to move to a gentrified neighbourhood or not. Gentrifiers are in general described as highly educated. Depending on the stage of gentrification diverse outcomes would be expected. The pioneers of the first stage of gentrification, bringing along yet small statistical changes to the neighbourhood, are young (e.g. students) and have a low income. They are (yet) to enter the labour market. However their high educational background is expected to influence their housing choice. The more affluent gentrifier of the second stage is older, though not much older than 40 and has a better income. However, for both groups their household composition is expected to be small and childless.

The explanatory variables are treated as categorical variables based on the found segmentations of the CHAID analysis. Therefore the separate categories have to be recoded into dummy variables. The separate categories take the value 0 or 1; the later meaning the variable has the given value. Age is split into six dummy variables whereby the oldest categories of 50 years and older is the reference category. Income is also split into five dummy variables with the highest income as the references group. Household composition is recoded into three dummy variables of single, multi-person households with child and multi-person households without child; the later is the reference group. Last but not least, education

is recoded into four dummy variables with the middle-level education as reference group. A total of 54.721 respondents are entered in the equation. 1.903 are categorised as the target group of having moved to a gentry-neighbourhood. Table 10 shows the output for the logistic regression analysis.

Table 10. Estimated parameters of the logistic regression model for the logit of moving to a gentry-neighbourhood since 2000 of 1.903 respondents (EXP(b), except the constant)

	Step 1		Step 2		Step 3		Step 4	
	Odds ratio [EXP(b)]	*S.E.*	*Odds ratio [EXP(b)]*	*S.E.*	*Odds ratio [EXP(b)]*	*S.E.*	*Odds ratio [EXP(b)]*	*S.E.*
Age (Ref=50+)								
15-24	10,75**	0,10	12,68**	0,10	12,38**	0,10	10,45**	0,11
25-34	8,90**	0,07	8,34**	0,07	9,51**	0,07	9,51**	0,07
35-39	5,08**	0,08	4,82**	0,08	6,74**	0,09	6,93**	0,09
40-44	3,50**	0,09	3,40**	0,09	5,06**	0,09	5,18**	0,09
45-49	1,92**	,011	1,86**	0,11	2,56**	0,11	2,59**	0,11
Education (Ref=Middle education)								
Low			1,41*	0,11	1,38*	0,11	1,20	0,11
High			2,44**	0,05	2,35**	0,05	2,49**	0,05
Other			2,39*	0,37	2,48*	0,38	2,33*	0,38
Household composition (Ref= without child)								
Single					2,54**	0,07	2,05**	0,08
With child					1,86**	0,07	1,90**	0,07
Income (Ref=5th quintile)								
1st quintile							1,64**	0,09
2nd quintile							1,17	0,09
3rd quintile							0,98	0,08
4th quintile							0,81*	0,08
Constant (b)	-4,43**		-4,84**		-5,52**		-5,55**	0,09
Pseudo-R² (Nagelkerke)	0,10		0,12		0,14		0,14	

(significant *: p<.05, **: p<.01)

In the first step, only age is used as predictor. All age categories appear to have significantly higher odds of choosing to live in a gentrified neighbourhood than the reference category (individuals of 50 years or older). However, the odds of belonging to the target group diminish with higher age groups. For the youngest age category (15-24), the odds of having moved into a gentry-neighbourhood are ten times higher than for individuals of 50 years or older. Probably, these are for a large extent students moving into inner city areas. For the next age category (between 25 and 34 years old), the odds are still nine times higher than for the reference category. For the third category (35-39) this probability is still five times as high. To sum up, younger age categories have significantly higher chances of belonging to the target category than the people older than 50 years. But these chances are decreasing with increasing age. Including the other predictors into the analysis (in step 2, 3 and 4) does not change this pattern. In short, getting older does not mean there is no chance of moving to gentrified neighbourhoods. However, the odds decrease gradually for older age groups, meaning that younger individuals carry the highest odds, but older age groups, but still younger than 50 years still hold higher chances of moving to a gentrified neighbourhood.

In the second step the variable education is added to the model. People with a low, high or other type of education hold significantly higher odds for moving to gentrified neighbourhoods than the reference groups (people with a middle level education). For highly educated people the odds are two and a half times higher than for people with a middle level education. Also individuals with a low or other type of education hold 1,41 and 2,39 times higher probabilities of belonging to the target group than the reference group. However, adding income to the model in step 4 leads to insignificant values for people with a low education. Highly educated households or households with another type of education still show significantly higher odds than average educated people. Both have twice as much the chance of moving to a gentrified neighbourhood than the reference group. However, people with another type of education have a less significant influence than people with a high education. To sum up, particularly highly educated individuals have significantly higher chances of belonging to the target category than individuals with a middle-level education.

In step 3 the household composition is added. The two categories of single households and households with children are compared to households without children. Both household groups show a positive and significant influence on the dependent variable. First, single households have two times higher odds of choosing to live in gentrified neighbourhoods than

do households without children. More or less the same can be said for household with children. The odds for households with children are nearly twice as high as the odds for households without children. This means - similar to the CHAID analysis - that life-cycle changes such as having children do not mean that households do not choose to live in gentrified neighbourhoods. Including income as final predictor into the analysis (in step 4) does not change this pattern, however it slightly diminishes the odds for single households.

Last, income is added to the model. What is interesting is that the lower income group holds significantly higher odds for choosing to live in gentrified neighbourhoods than households with the highest income. The middle-income groups show no significant influence on the probability of moving to gentrified neighbourhoods. Merely the second last highest income group does have somewhat lower odds to choose to live in a gentry-neighbourhoods than the highest income group. Short, having a low income rather than a high income increases the chance to move to gentrified neighbourhoods. This could be explained by the fact that especially in the first stage of gentrification gentrifiers have a low income. Students or artists cannot afford housing in popular neighbourhoods and thus look for affordable alternatives. Having a high income, on the other hand, opens up more possibilities and households can afford housing in neighbourhoods who are expensive. They can choose for housing in a neighbourhood where the prices are already saturated.

Figure 6 presents the results of the logistic regression analysis graphically. Here the odds ratios of merely the fourth step are presented. The grey beams indicate that the effect is not significant.

Figure 6. Translated estimated parameters of the logistic regression model for the logit of living in gentry-neighbourhoods since 2000 of 1.903 respondents
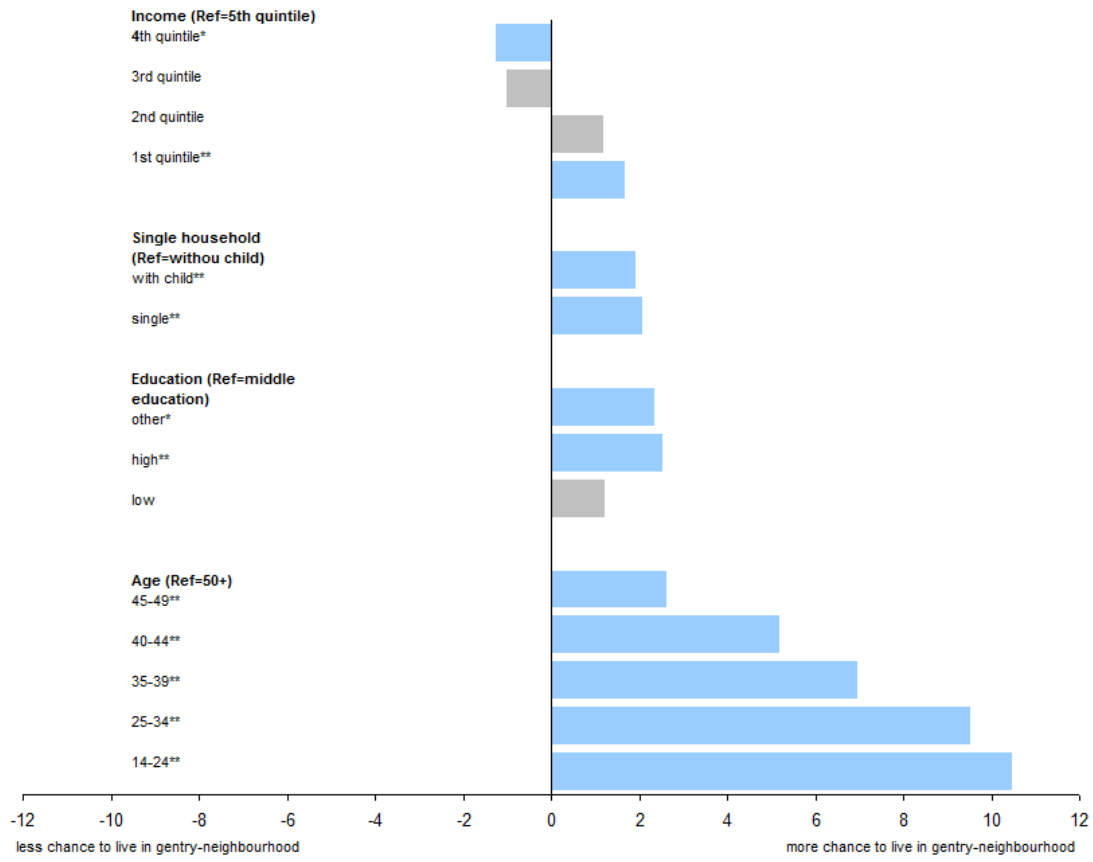
(significant *: p<.05, **: p<.01)

5. Discussion and Recommendations

5.1. Theoretical Implications

The found results of the analyses have to be reviewed in light of the earlier set research problem. To recapture this in short:

Who are the gentrifiers in Dutch cities of today and what socio-demographic characteristics influence their choice for living in gentrified neighbourhoods?

In order to give answer to this research problem some research questions had to be answered first:

- How can gentrified neighbourhoods best be described?
- How can the classical gentrifier best de described in terms of demographic characteristics?
- What are the actual socio-demographic characteristics of households having moved to gentrified neighbourhoods?
- Compare the found group(s) of gentrifers to the classical definition gentrifier?
- What is the influence of the demographic characteristics on moving to gentrified neighbourhoods?
- What are the implications of the found results for future research as well as policymakers?

The first two questions are already answered. In short gentrified neighbourhoods are characterised by a regularly older housing stock located in or near the central city area. During the process of gentrifcation the property values increase relatively more than on average for the whole region. This definition was translated to a selection of respondents based on A) the living environment typology (neighbourhoods defined as city centre or urban pre-war), B) neighbourhoods with a higher average increase in real estate value than the average increase of the municipality and C) respondents having moved to the neighbourhood since 2000.

Regarding the second question the classical gentrifier compromises a small, often childless households of high education. The income level as well as age dependents on the stage of gentrification at hand. The pioneers of gentrification, students or artists, are relatively young and have rather low income. However, at a later stage, the gentrifiers following the pioneers are older more mature households around thirty with a middle-class income.

What are the actual socio-demographic characteristics of households having moved to gentrified neighbourhoods?

The analyses have shown that the expected group of high-educated people in their mid-thirties in fact have moved to the gentrified neighbourhood. However, the expected distinction of household composition with and without children is not applicable. In fact, next to the large share of single households also households with children choose to live in these areas. This is especially true for the somewhat older age groups between 25 to 40 years. For most groups it is true that education is of importance. However, being young and single alone increases the chance of moving to a gentrified neighbourhood. Income could not clearly differentiate the younger age group neither the older age groups. Its influence is somewhat unclear. In short, three types of gentrifiers were described: the classical gentrifer, the young single and the highly educated parents.

Compare the found group(s) of gentrifers to the classical definition gentrifier? AND What is the influence of the demographic characteristics on moving to gentrified neighbourhoods?

Even though one of the groups found complies with the expected classical description of gentrifiers, also other types were found. Overall, a high level of education leads to higher chances of moving to gentrified neighbourhoods than does holding an average level of education. The same is true for single households in comparison to multi-person households without children. However, also household with children do choose to live in the target areas and carry higher odds than households without children. This is contrasting with the classical definition but supports the claim of Ley (in Smith & Holt, 2007) that higher education, thus cultural capital, rather than life-cycle aspect, form the foundation of the housing preferences of gentrifiers. Nonetheless, it was also seen that in combination with either younger age groups or more mature age groups (though still younger than 50) cannot be differentiated based on their educational background. Thus the claim is not generalizable.

In short, in Dutch cities it seems that the general idea of whom the gentrifier is partially true, though still in need for more accurate definition. Simply to assume gentrifiers are young, highly educated, small households without children does not conceal the total group of possible gentrifiers. Policymakers and city developers should look beyond this common definition. Age, education and household composition influence the probability of someone moving to gentrified neighbourhoods. Interesting is that the younger age groups hold higher probabilities for choosing to live in the target area in comparison to older households. Further living alone increases the chances compared to a couple without children. Nonetheless, also households with children show significantly higher odds than households without children. Holding a high education, in general, increases the probability of choosing to live in the gentry-neighbourhoods compared to households with a middle-level education. Thus, the results support the call of Rose (1984) to rethink the conceptualization of gentrification.

5.2. Practical implications

Last, *What are the implications of the found results for future research as well as policymakers?*

In order to do so, the Primos household estimation model constructed by ABF Research will be applied. The relevant indicators age, education and household composition are looked at. Considering the age groups the focus lies with households of 25 years or younger, 25-39 years, 40-44 years and 45-49 years. With household composition single households and household with children are looked at. Considering the education the focus will be with the low and highly educated households. Per category the growth rate in 2020 with respect to 2010 will be presented.

Household

Single person households grow the most in the municipalities of Zuidplas, Bunnik and Vianne. Most of the municipalities with high growth rates of 40% or more are located in the provinces of Zuid-Holland or Utrecht. Thus within the Randstad area, one of the most dense areas of the Netherlands. Also in provinces of Noord-Brabant or Flevoland high growth rates of more than 30% are expected.

Figure 7. Growth rate single households, 2020 (with respect to 2010)
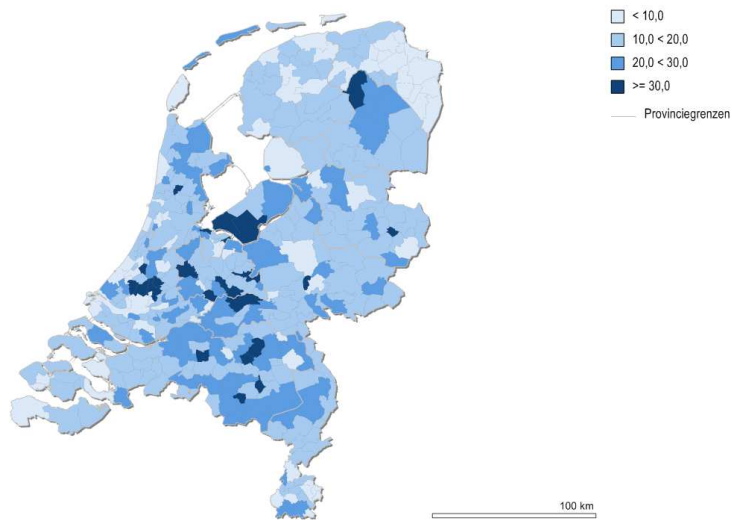
Households with children show the highest growth rates in municipalities such as Urk, Woudenberg, or Zuidplas. Also Utrecht or the Hague have relatively high growth rates. Again many of the municipalities are to be found in the central area of the Netherlands and within within the Randstad area as can be seen inn figure 8.

Figure 8. Growth rate households with child, 2020 (with respect to 2010)
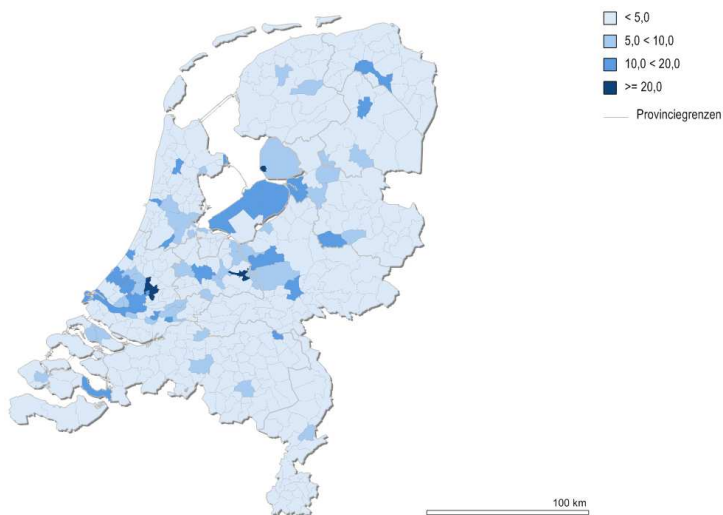
Age

Edam-Volendam, Oudewater and Ten Boer are the top three municipalities when considering the growth rates of the age group of 25 years or younger. Again two of the three are located in the Randstad area. Ten Boer is located in the province of Groningen in the North of the Netherlands. Overall, the younger age groups will grow rapidly throughout the coming years.

Figure 9. Growth rate age <25, 2020 (with respect to 2010)
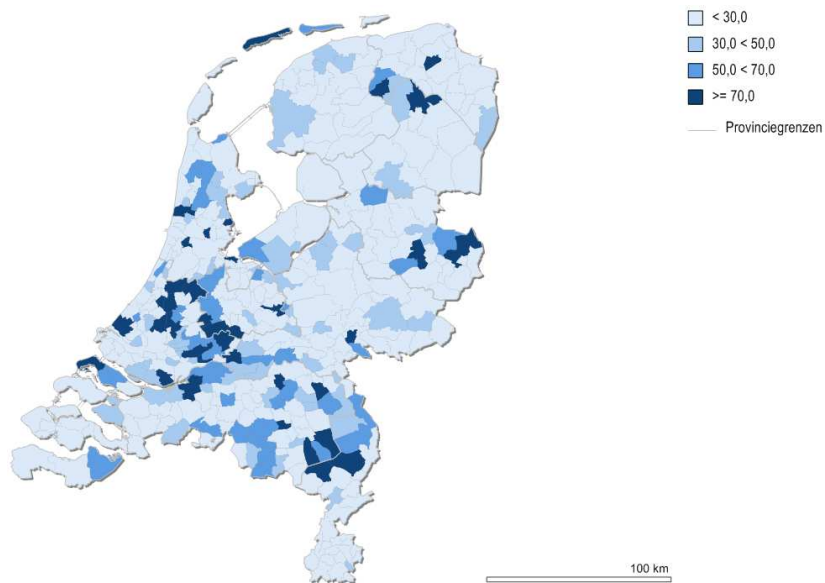
The age group of 25 to 39 years has the highest growth rates in and around the Randstad area. Municipalities such as Muiden, Blaricum or Rijswijk show growth rates of 30% or higher.

**Figure 10. Growth rate age 25-39, 2020 (with respect to 2010)**
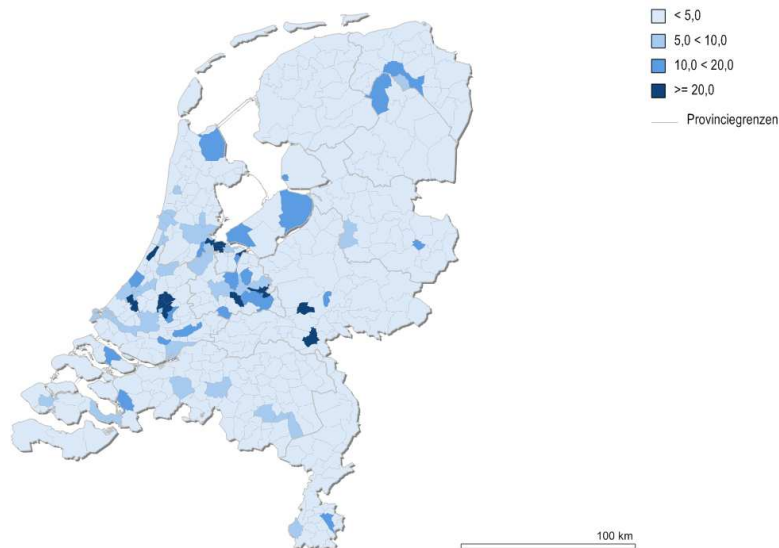
The age group of 40 to 44 years grows the strongest in municipalities such as Utrecht, Scherpenzeel or Aalsmeer, though in general this group grows much less than the younger age groups.

Education

The last indicator is the development of low and highly educated households. Once again much growth for both segments is seen in the central area of the Netherands and the Randstad. Pijnacker-Nootdorp shows the highest growth in terms of low educated households, followed by Zeewolde and Zuidplas. However, this segment in general shows relatively small growth rates. This means that on avaregae people are more and more highly educated. The high-educated households, on the contrary, grow throughout the country with the highest growth rates in municipalities such as Zuidplas, Muiden or Woudenberg. Once again many of these are all located in the central area or Randstad area.

Figure 11. Growth rate high education, 2020 (with respect to 2010)
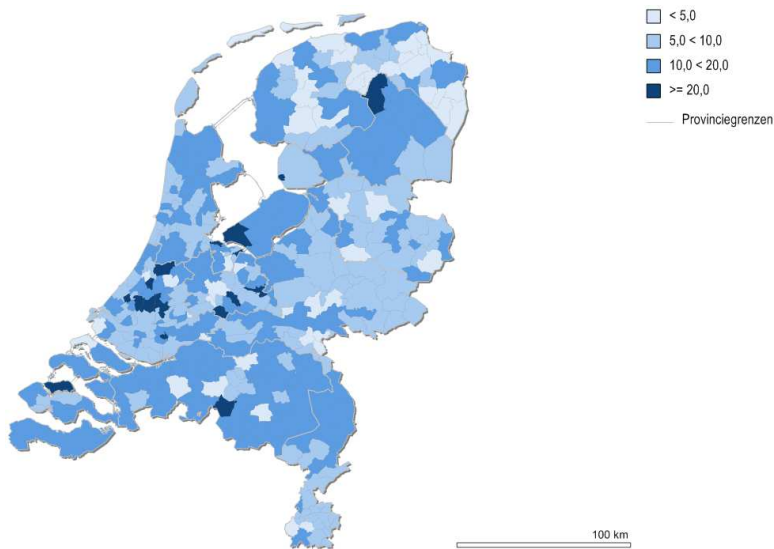
The above exercise shows that much of the segments relevant, when considering the diverse segments of gentrifiers, grow the most in and around the Randstad area and central Netherlands. Policymakers should consider such developments for further development of certain neighbourhoods and the success of such. Again the supply is intertwined with the demand.

5.3. Limitations and future research

Last, some annotations on the limitations of this research are discussed.

First, a limitation is the secondary dataset used. Since the WoON has not been designed for answering the set research question, the research is limited to the available data at hand. This means concessions have to be made in terms of defining the dependent as well as independent variables. Further, the use of more predictors would be interesting such as lifestyle variables of values and norms or type of occupation. Thus, future research could collect the data instead of using secondary data and as a result the data collected would fit the objective better. Not using secondary data could eventually lead to different outcomes.

Furthermore the dataset of 2009 was used as secondary data. In fact, the recession has not yet had its great impact on the respondents. Therefore it would be interesting, whether a similar research of the upcoming WoON dataset of 2012 does in fact deliver similar results.

Further, the analyses carried out are of explorative character and therefore can not result in general conclusions. CHAID is a useful technique of summarizing data and can show key segmentations of respondents. However, similar to the forward stepwise regression analysis the outcomes are suggestive. Results should not be considered definite as entering different predictors can lead to a different tree. Another aspect is the need to look more closely nto possible interaction effects of the predictor.

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